

**TECHNICAL REVIEW DOCUMENT
For
RENEWAL OF OPERATING PERMIT 95OPLR073**

Colorado State University
Larimer County
Source ID 0690011

October - November 2011, June 2012

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I. Purpose

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed Operating Permit for the Colorado State University. The previous Operating Permit for this facility was issued on October 1, 2004 and expired on October 1, 2009. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal operating permit is issued and any previously extended permit shield continues in full force and operation.

This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted on September 23, 2008, and additional information received August 28, 2008, October 23, 2008, April 20, 2009, July 1, 2009, October 18, 2010, November 29, 2010, July 20, 2011, August 1, 2011, and September 20, 2012, previous inspection reports, and various phone conversations and email correspondence with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.colorado.gov/cs/Satellite/CDPHE-AP/CBON/1251596446069>. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility is a major university classified under SIC code 8221. The University has two primary campuses: Main Campus (579 acres) and South Campus (approximately 400 acres)). The University operates several boilers and emergency generators.

Three boilers (Boilers 1, 2, and 3) at the Main Campus are used for comfort heating and process use, located off Mason Street south of the Gibbons building. The boilers are primarily fired with natural gas and have the capability of using No. 2 fuel oil for backup. A steam turbine (approximately 500 to 1,000 KW) exists downstream of the three boilers which lowers steam pressure generated by the boilers (120 – 160 psig) to the system distribution pressure (40 - 60 psig), and generates electricity for use on campus. Boiler 2 was equipped with an economizer for heat recovery in 2007.

There are also two smaller natural gas-fired boilers on South Campus for comfort heating and process use, located at the Diagnostic Medicine Center (DMC). The university also operates many emergency generators located at different buildings around both campuses.

The facility also houses gasoline storage tanks which are exempt from both APEN and permitting requirement but subject to NESHAP requirements. There are numerous small boilers and heaters located through the facility that are classified as insignificant activities.

This facility is located in an Area classified as attainment/maintenance for carbon monoxide (CO). Under that classification, all SIP-approved requirements for CO will continue to apply in order to prevent backsliding under the provisions of Section 110(l) of the Federal Clean Air Act. This Area is classified as non-attainment for ozone and is part of the 8-hr Ozone Control Area as defined in Regulation No. 7, Section II.A.1.

The following are affected states within 50 miles of the facility: Wyoming. The following Federal Class I designated areas are within 100 kilometers of the facility: Rocky Mountain National Park and Rawah Wilderness Area.

This facility is categorized as a NANSR major stationary source (Potential to Emit of VOC or NO_x > 100 Tons/Year). Future modifications at this facility resulting in a significant net emissions increase (see Reg 3, Part D, Sections II.A.26 and 42) for VOC or NO_x or a modification which is major by itself (i.e. a Potential to Emit of > 100 TPY of either VOC or NO_x) may result in the application of the NANSR review requirements.

Based on the information provided by the applicant, this source is categorized as a minor stationary source for PSD as of the issue date of this permit. Any future modification which is major by itself (Potential to Emit of > 250 TPY) for any pollutant listed in Regulation No. 3, Part D, Section II.A.42 for which the area is in attainment or attainment/maintenance may result in the application of the PSD review requirements.

Emissions (in tons/yr) at the facility are as follows:

	Potential to Emit (tons/year)							
	NO _x	CO	VOC	SO ₂	PM	PM ₁₀	Individual HAP	Total HAP
Main Campus Boilers	127.7	65.8	4.3	42.8	19.1	13.3		
DMC Boilers	5.4	9.1	0.6	0.1	0.8	0.2		
Quad I Generators	27.5	6.3	0.8	4.6	0.8	0.8		
Corbett Generator*	0.2							
Total	171.8	83.6	12.7	48.6	21.3	14.9	< 8	< 20

*These generators are subject to the APEN reporting requirements in Colorado Regulation No. 3, Part A and exempt from the construction permit requirements of Part B.

Applicable Requirements

NSPS Subpart IIII

The initial final rule for 40 CFR Part 60 Subpart IIII for compression ignition internal combustion engines was promulgated on July 11, 2006 and was later amended on June 28, 2011. The rule applies to new engines installed after July 11, 2005 which were manufactured after April 1, 2006 as well as modifications and reconstructions of existing engines after July 11, 2005. The University operates many emergency generators located at various facilities on both CSU campuses. Several of these emergency generators were installed after the applicability date and are subject to the provisions of NSPS Subpart IIII. The Division has agreed to group the engines located at CSU onto one point with single AIRS ID. The University received one construction permit for all NSPS IIII subject emergency generators on campus. Since the issuance of the initial construction permit for these sources, additional engines have been installed on site. These additional engines were assigned the same grouped AIRS IDs and permitted directly through the Title V renewal issuance.

NSPS Subpart JJJJ

The final rule for 40 CFR Part 60 Subpart JJJJ for spark ignition internal combustion engines was initially published in the Federal Register on January 18, 2008 and subsequently revised on June 28, 2011. There are thirteen natural gas-fired spark ignition engines located within the CSU boundary that are potentially subject to the requirements of NSPS Subpart JJJJ. For emergency generators with a maximum engine power greater than 19 KW, the rule applies to engines that are manufactured after January 1, 2009. Twelve of the spark ignition emergency generators on campus were installed prior to the applicability date of the rule and therefore are not subject to its provisions. The Corbett engine was reported to the Division after the applicability date. The manufacture date of the engine was not provided to the Division, therefore the Division can only presume the date of manufacture was on or after the date the equipment was reported to the Division. The requirements of Subpart JJJJ were included in the operating permit for the Corbett generator.

NESHAP Subpart ZZZZ

The final rule for 40 CFR Part 63 Subpart ZZZZ for reciprocating internal combustion engines was revised on March 2010 to apply to all existing compression ignition engines located at area sources. The rule includes an exemption for institutional emergency stationary engines located at area sources of HAPs. An institutional establishment as defined in the rule includes institutions of higher education, therefore, the emergency generators located at CSU are exempt from the provisions of Subpart ZZZZ. The Division has determined that to qualify as an emergency engine for the purposes of NESHAP Subpart ZZZZ, the engines shall only operate during sudden, unplanned events. The permittee must obtain a permit modification prior to operating during any non-emergency situation, unless allowed by the rule (see 40 CFR 63.6640).

NESHAP Subpart JJJJJJ

CSU operates several boilers that are potentially subject to the National Emission Standards for Hazardous Air Pollutants for Area Sources for Industrial, Commercial, and Institutional Boilers. The final rule reconsideration rule was signed on December 20, 2012. The rule has yet to be published in the Federal Register, but is expected prior to the issuance of this permit.

Currently, the three Main Campus boilers and two DMC boilers meet the definition of “gas-fired boiler”, as oil is used only for periodic testing and during periods of gas curtailment and are therefore not subject to the requirements of Subpart JJJJJJ.

NESHAP Subpart CCCCCC

The final rules for gasoline dispensing facilities at area sources in 40 CFR Part 63 Subpart CCCCCC were published in the Federal Register on January 10, 2008. A gasoline dispensing facility is defined as any stationary source that dispenses gasoline into the fuel tank of a motor vehicle. CSU houses several gasoline tanks that are used to fuel motor vehicles and is therefore considered a gasoline dispensing facility under the rule.

There are five gasoline storage tanks identified as an insignificant activity under the provisions in Colorado Regulation No. 3, Part C, Sections II.E.3.a. However, under the “catch-all” provisions in Regulation No. 3, Part C, Section II.E, sources that are subject to any federal or state applicable requirement, such as NESHAPs, may not be considered insignificant activities for operating permit purposes. These tanks are subject to the provisions of Subpart CCCCCC and therefore can no longer be considered an insignificant activity in the operating permit. Although the units cannot be considered an insignificant activity, since the Division has not yet adopted the rule, the tanks are still exempt from APEN reporting and minor source construction permit requirements. While three of these small tanks have a monthly throughput of less than 10,000 gallons and would otherwise be subject to best management practices under Subpart CCCCCC, the EPA has clarified that the throughput thresholds are to be applied on a facility wide basis. CSU also operates a larger gasoline tank at the Motor Pool facility with a monthly throughput above the 10,000 gallon threshold. For facilities with a monthly throughput greater than 10,000 gallons but less than 100,000 gallons, the rule requires the tank to utilize submerged fill pipes. Therefore, every tank present at CSU is subject to the requirements for tanks within this monthly throughput range. The applicable requirements were included in the renewal permit.

Engine Permitting Requirements

In years past, Colorado Regulation No. 3 has included APEN exemptions for emergency generators based on rated horsepower and annual hours of operation. CSU operates many emergency generators on site and has been using this exemption to qualify this equipment as an insignificant activity. The emergency generator APEN exemption has since been removed and therefore the generators are only exempt from APEN reporting if uncontrolled actual emissions fall below the reporting threshold. For these emergency generators, the thresholds of concern are one ton per year for NO_x and two tons per year for CO. CSU has submitted a revised list of engines which qualify as an insignificant activity. CSU has also submitted a grouped APEN for the engines which are no longer considered APEN-exempt. These generators are subject to the APEN reporting requirements in Colorado Regulation No. 3, Part A but are exempt from the construction permit requirements of Part B. For operating permit purposes, they are considered an insignificant activity in accordance with categorical exemption in Reg No. 3, Part C, Section II.E.nnn.

Compliance Assurance Monitoring

The equipment at this facility does not utilize a control device to reduce emissions and therefore are not subject to CAM requirements.

Greenhouse Gases

The potential emissions of greenhouse gas (GHG) from this facility are greater than 100,000 TPY CO₂e. Future modifications greater than 75,000 tons per year CO₂e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

III. Discussion of Modifications Made

Source Requested Modifications

The source has submitted to the Division the following information in relation to the renewal operating permit:

- August 8, 2008: CSU submitted a minor modification application for two 12.6 MMBtu/hr natural gas-fired boilers located at the DMC on CSU's South Campus.
- September 23, 2008: The source submitted the Title V renewal application in a timely fashion which requested the following:
 - Incorporate the significant modification to the underlying construction permit 07LR0605 for the Babcock and Wilcox boiler economizer.
 - Include provisions for the addition of the DMC boilers, as requested in the August 8, 2008 minor modification application.
 - Update the list of insignificant activities.
- April 20, 2009: A supplemental letter was submitted containing the following information:

- A summary of the minor modifications previously submitted to the Division which should be rolled into the renewal permit issuance. The summary included modifications for several emission units located at the Foothills campus that was not included in the permit, as discussed later in this document.
 - Information regarding emergency generators subject to NSPS Subpart IIII.
- July 20, 2011: A minor modification application was submitted requesting the addition of two standby generators to the AIRS point covering engines subject to NSPS Subpart IIII.
- February 7, 2012: CSU submitted a letter requesting the Division revisit the source determination for the facility, specifically whether it was appropriate to consider isolated campuses, such as Foothills, a single source with CSU's main campus.
- September 2012: CSU submitted detailed information on all generators located at the CSU Main/South Campus and submitted a revised APEN for the NSPS Subpart IIII subject generators accordingly.

The source's requested modifications were addressed as follows:

- The Division has investigated whether the Colorado State University facilities permitted under operating permit 95OPLR073 are properly defined as a single source for purposes of air permitting requirements. The inclusion of campuses physically separated from the central Main/South Campus was examined, specifically whether the Foothills Campus, which houses several pollutant-emitting units, was appropriately defined within the CSU source boundary. Based on a review of the files, the Division has determined that the Main/South Campus and the Foothills Campus should be considered two separate sources for NSR and Title V purposes.

The Foothills Campus is located two miles west of the Main/South Campus site. The two facilities are not connected by any institute-owned roads or railways. According to information submitted by CSU, the Main/South Campus site contains classrooms, housing, labs, and offices with its general purpose being the education of students. The Foothills Campus does not have any student housing and functions primarily as a research site. Since these sites perform unique functions, the Division concludes that the two facilities are located a sufficient distance apart and do not meet the "common sense" notion of a source and thus cannot be considered contiguous or adjacent.

The equipment located at the Foothills campus previously included in the CSU operating permit has been removed from the permit. Equipment at the Foothills facility is now permitted under AIRS ID 069/0507. Construction permit 09LR1063, which covered several emergency generators subject to NSPS Subpart IIII located at both the Foothills and Main/South Campuses has been modified to account for the revised source determination. The construction permit has been modified to include only engines located at the Foothills facility

and the remaining engines located on the Main/South Campus have been permitted directly through the operating permit.

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- Updated the responsible official in accordance with information submitted September 9, 2011.

Section I – General Activities and Summary

- Updated facility description to account for the change in the revised source boundary determination.
- The summary of emission units was updated. The engines permitted under a single AIRS point were broken down in this table by engine.

Section II – Specific Permit Terms

- Construction permit 07LR0605 was issued on October 24, 2007 due to a CSU request for a modification of Boiler 2 to install an economizer. The source took a synthetic minor limit for NO_x to avoid PSD permitting implications. This permit also established individual fuel consumption limits for the boiler. Note Boiler 2 is still subject to the fuel consumption and emission limitations that apply for Boilers 1, 2, and 3 combined. The appropriate applicable requirements from this permit were included in the renewal operating permit.
- The DMC Boilers, as permitted in final approval Colorado Construction Permit 08LR0927, issued February 11, 2010, were added to the operating permit. The requirements from the construction permit were added as written with the following exceptions:
 - The odor requirements were not included as a specific condition as the requirements are included in the general conditions in Section IV of the permit.
 - While not explicitly stated in the permit, the source is subject to the Colorado Regulation No. 1, Section II.A.4 30% opacity standard for certain operating scenarios. Based on engineering judgment the Division believes the only specific condition which would apply to these emissions units is start-up. As such, this requirement was added to the permit in addition to the 20% opacity standard as listed in the construction permit.
 - In addition to the requirements listed in the construction permit, the boiler are also subject to the particulate matter limitations from both Colorado Regulation No. 1 and No. 6. The Reg 1 requirements were included under the specific conditions for these emissions units. The identical state-only Reg. 6 requirements were streamlined in Section III.3 of the operating permit.
 - The construction permit included fuel consumption limits for both the individual boilers and the boilers combined. The total combined boiler limit

- was a sum of the two individual limits. To eliminate redundancy, only the individual limits were included in the operating permit.
- The emission calculation listed in the construction permit used the higher heating value of the fuel and emission factors in lb/MMBtu, yet referred to emission factors listed in the notes to permit holder which were in units of lb/MMscf. The lb/MMscf emission factors were included in the operating permit and the equation was modified accordingly to accommodate the use of these emission factors.
 - The group of standby generators subject to NSPS Subpart IIII was incorporated into the operating permit. The requirements from the construction permit the engines were originally permitted under (09LR1063) were added to the operating permit with the following changes.
 - The emissions limitations were revised to reflect the emissions only from engines located at the CSU Main/South Campus. The annual emission limitation were only included for individual engines with potential emissions above the APEN threshold.
 - The method for calculating emissions was outlined in the operating permit. The source has technical difficulties accurately measuring fuel throughput, so the Division has approved CSU to calculate monthly emissions using hours of operation. The source will monitor hours of operation as recorded by a non-resettable hour meter. Compliance with the construction permit's emissions and fuel throughput limit is presumed given compliance with the hours of operation monitor, therefore the limits were removed.
 - The new Corbett Hall generator requested by the July 20, 2011 application identified as subject to NSPS Subpart IIII is a natural gas-fired spark ignition engine. NSPS Subpart IIII applies to only compression ignition (diesel-fired) engines; therefore this engine was not included in the point reserved for IIII subject emergency generators.
 - The Corbett Hall generator, which is subject to NSPS JJJJ was moved to its own point.
 - The list of insignificant generators was updated in accordance with information submitted September 7, 2012.
 - All gasoline storage tanks located at CSU were moved to the permit from insignificant activity as they are now subject to NESHAP Subpart CCCCCC, as discussed above.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified

during inspections and/or discrepancies identified during review of this renewal. These changes are as follows:

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- It should be noted that the monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

Section I – General Activities and Summary

- Revised the language in Condition 1.4 include current conditions that are state-only enforceable.
- Updated Condition 3.1 (status of source with respect to PSD requirements) to reflect Division's current standard language and current Regulation No. 3 citations.

Section IV – General Permit Conditions

- Updated the general permit conditions to the current version (5/22/2012).

Appendices

- Updated Appendices B and C (Monitoring and Permit Deviation Reports and Compliance Certification Reports) to the newest versions (2/20/2007).
- The Division's addressee and EPA's mailing address was revised (Appendix D).